CLAIM AMENDMENTS

The following is a complete listing of the pending claims:

1. (currently amended) A method of analyzing trace metals in solution, comprising:

providing a sample channel separated from a first carrier solution channel by a first anion ~~ion~~ exchange membrane and separated from a second carrier solution channel by a second anion exchange membrane;

flowing a sample through the sample channel, wherein the sample includes ~~a~~ an acidic matrix and at least one trace metal to be detected;

flowing a first carrier solution through the first carrier solution channel;

flowing a second carrier solution including a metal-complexing reagent through the second carrier solution channel so that the metal-complexing reagent diffuses through the second ion exchange membrane into the sample; and

providing an electrical potential to assist diffusion of an anionic form of the acidic matrix ~~ions~~ through the first ~~ion~~ anion exchange membrane into the first carrier solution channel and to assist diffusion of hydroxide ions from the second carrier solution through the second anion exchange membrane into the sample to neutralize at least a portion of the acidic matrix, whereby the diffused metal-complexing reagent in the sample complexes with the at least one trace metal such that the at least one trace metal doesn't combine with the hydroxide ions; ~~and~~

~~flowing a carrier solution through the carrier solution channel so that a component the metal-complexing reagent of the carrier solution is diffused through the first ion exchange membrane into the sample channel to treat the sample for detection of the at least one trace metal~~.

2. (cancelled)

3. (cancelled)

4. (currently amended) The method of Claim 1 ~~2~~, wherein the metal-complexing reagent is an organic or inorganic acid.

5. (currently amended) The method of Claim 1 ~~2~~, wherein the metal-complexing reagent is selected from the group consisting of formic acid, acetic acid, oxalic acid, glycolic acid, ethylenediaminetetraacetic acid (EDTA), nitrotriacetic acid (NTA), diethylenetriaminepentaacetic acid (DTPA), ethylenediamine (EDA), glycine, iminodiacetic acid (IDA), and amines.

6. (currently amended) The method of Claim 1, further comprising detecting the complexed ~~stabilized~~ trace metal by mass spectroscopy.

7. (cancelled)

8. (currently amended) A method of analyzing trace metals in solution, comprising:

providing a sample channel between two carrier solution channels, the sample channel being defined by two ~~ion~~ anion exchange membranes that separate the sample channel from the two carrier solution channels;

flowing a sample through the sample channel, wherein the sample includes ~~a~~ an acidic matrix and at least one trace metal to be detected;

providing an electrical potential between the carrier solution channels to assist diffusion of an anionic form of the acidic matrix ~~ions~~ through a first one of the anion exchange membranes and to assist diffusion of hydroxide ions through a remaining one of the anion exchange membranes into the sample to neutralize at least a portion of the acidic matrix ~~ions through the ion anion exchange membranes~~;

flowing a carrier solution including at least one metal-complexing reagent through at least one of the two carrier solution channels so that the at least one metal-complexing reagent is diffused through at least one of the ~~ion~~ anion exchange membranes into the sample channel;

forming a metal complex between the at least one metal-complexing reagent and the at least one trace metal to stabilize the at least one trace metal in solution, thereby treating the sample; and

detecting the stabilized trace metal in the treated sample.

9. (Original) The method of Claim 8, wherein the metal-complexing reagent is an organic or inorganic acid.

10. (Original) The method of Claim 8, wherein the metal-complexing reagent is selected from the group consisting of formic acid, acetic acid, oxalic acid, glycolic acid, ethylenediaminetetraacetic acid (EDTA), nitrotriacetic acid (NTA), diethylenetriaminepentaacetic acid (DTPA), ethylenediamine (EDA), glycine, iminodiacetic acid (IDA), and amines.

11. (Original) The method of Claim 8, wherein the electrical potential is provided by an anode electrode and a cathode electrode in electrical communication with the two carrier solution channels.

12. (Original) The method of Claim 8, wherein the detecting of the stabilized trace metal is performed by mass spectroscopy.

13. (cancelled)

14. (Original) The method of Claim 8, wherein water is flowed through the at least one of the two carrier solution channels and electrolyzed to generate hydroxide or hydronium ions.

15. (Original) The method of Claim 8, further comprising re-flowing the treated sample through the sample channel for further treatment prior to analysis.

16. (Original) The method of Claim 15, wherein the treated sample is stored in a heated reservoir prior to being re-flowed through the sample channel.

17. (Original) The method of Claim 15, wherein the electrical potential is provided by an anode electrode and a cathode electrode in electrical communication with the two carrier solution channels.

18. (Original) The method of Claim 17, wherein the polarity of the electrodes are switched between re-flow cycles of the treated sample through the sample channel.

19. (Original) The method of Claim 8, further comprising recycling unspent metal-complexing reagent through the at least one of the two carrier solution channels.

20. (Original) The method of Claim 8, further comprising flowing a different carrier solution through each of the two carrier solution channels.

21. (currently amended) The method of Claim 20, wherein the carrier solution flowing through a carrier solution channel includes a the at least one metal-complexing reagent and the carrier solution simultaneously flowing through the other carrier solution channel does not include a metal-complexing reagent.

22. (currently amended) The method of Claim 8, wherein the anion ~~ion~~ exchange membranes are different from one another.

23. (cancelled)

24. (currently amended) A method of analyzing trace metals in solution, comprising:

providing an electrodialysis apparatus including a sample channel between two carrier solution channels, the sample channel being defined by two ~~ion~~ anion exchange membranes that separate the sample channel from the two carrier solution channels;

flowing a sample through the sample channel, wherein the sample includes a an acidic matrix and at least one trace metal to be detected;

providing an electrical potential between the carrier solution channels transverse to the flow of the sample through the sample channel to assist diffusion an anionic form of the acidic matrix through a first one of the anion exchange membranes and to assist diffusion of hydroxide ions through a remaining one of the anion exchange membranes

into the sample to neutralize at least a portion of the acidic matrix ~~ions through the ion anion exchange membranes~~;

flowing a carrier solution including at least one metal-complexing reagent through at least one of the two carrier solution channels so that the at least one metal-complexing reagent is diffused through at least one of the two ~~ion~~ anion exchange membranes into the sample channel;

forming a metal complex between the at least one metal-complexing reagent and the at least one trace metal to stabilize the at least one trace metal in solution, thereby treating the sample;

~~flowing a carrier solution including hydroxide or hydronium ions through at least one of the two carrier solution channels so that the hydroxide or hydronium ions are diffused through at least one of the two ion exchange membranes into the sample channel to substantially neutralize an acidic or basic matrix, thereby treating the sample~~; and

analyzing the treated sample by mass spectroscopy to detect the stabilized trace metal.

25. (currently amended) The method of Claim 24, wherein the ~~ion~~ anion exchange membranes are different from one another.

26. (cancelled)

Claims 27 – 41. (cancelled)